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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,562	10/24/2003	Byron Elliott Short JR.	004578.1306	3601

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EXAMINER

CHEN, SHIH CHAO

ART UNIT	PAPER NUMBER
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2821

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/693,562

Applicant(s)

SHORT ET AL.

Examiner

Shih-Chao Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
- 4a) Of the above claim(s) 35-60 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-7, 10, 14-17, 19-22, 25-27, 30 and 34 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 8, 9, 11-13, 18, 23, 24, 28, 29 and 31-33 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 35-60 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 27, 2005.
2. Applicant's election without traverse of claims 1-34 in the reply filed on June 27, 2005 is acknowledged.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 5-7, 10, 14-17, 19-22, 25-27, 30 and 34 are rejected under 35 U.S.C. 102(e) as being anticipated by Kroliczek et al. (U.S. Pub. No. 2005/0061487 A1).

Regarding claim 1, Kroliczek et al. teaches in figures 1-25 an apparatus, comprising: an antenna section having a plurality of antenna elements (i.e. phased array antennas), and having circuitry (i.e. electronics) which includes a plurality circuit portions each operatively coupled to a respective one of the antenna elements (See page 9, [0101] & page 13, [0155]); and a cooling section [100] which accepts and dissipates heat generated by the circuitry, the cooling section including a loop [125, 160]

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containing a cooling fluid, and including a wick [140, 145] disposed within the loop in the region of the circuitry, the wick effecting a capillary pressure which urges the fluid to travel around the loop.

Regarding claim 2, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 1, wherein the antenna section includes a phased array antenna, the antenna elements and the circuitry being portions of the phased array antenna (See page 9, [0101] & page 13, [0155]).

Regarding claim 5, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 2, wherein the antenna elements all lie approximately a common plane (i.e. the phased array antennas disposed on the substrate); wherein the circuitry is provided on a circuit board extending approximately parallel to the plane of the antenna elements; and wherein the cooling section [100] includes an evaporator [115] disposed adjacent at least a portion of the circuitry.

Regarding claim 6, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 1, wherein the loop [125, 160] of the cooling system [100] is a capillary pumped loop.

Regarding claim 7, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 6, wherein the loop [125, 160] of the cooling system [100] includes: an evaporator [115] having the wick [140, 145] therein; a condenser [120] disposed along the loop at a location remote from the evaporator, the fluid flowing through each of the evaporator and the condenser; and a reservoir [147] which is in fluid communication with the loop, and which contains a quantity of the fluid.

Regarding claim 10, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 1, wherein the loop [125, 160] of the cooling system [100] is a loop heat pipe.

Regarding claim 14, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 1, wherein the loop [125, 160] of the cooling system [100] includes an evaporator [115] having the wick [140, 145] therein, and includes a condenser [120]; and including a heat sink [165] which is in thermal communication with the condenser.

Regarding method claims 15-17, the apparatus discussed above would perform.

Regarding claim 19, Kroliczek et al. teaches in figures 1-25 an apparatus, comprising: structure which generates heat (See page 9, [0101] & page 13, [0155]); and a cooling section [1100] which accepts and dissipates heat generated by the structure, the cooling section including a loop [1125, 640] containing a cooling fluid, the loop including a plurality of evaporators [600] disposed the region the structure, a manifold section (See FIG. 11) for distributing fluid flowing through the loop among the evaporators, and a plurality of wicks [620] which are each disposed within a respective the evaporator, the wicks effecting capillary pressure which urges the fluid to travel around the loop, the manifold section including plurality of first passageway sections which each have an inlet end and which each have an outlet end coupled to an input of a respective the evaporator, and the manifold section having a plurality second passageway sections that each have first end which is approximately normal to and communicates with a respective the first passageway section, and that each have a

second end which is coupled to the first end of a different the first passageway section (See FIG. 11).

Regarding claim 20, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 19, wherein the manifold section distributes the fluid to the evaporators [600] in a sequence corresponding a progressive increase in the respective amounts of heat accepted by the evaporators from the structure.

Regarding claim 21, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 19, wherein the structure includes an antenna section having a plurality of antenna elements (i.e. phased array antennas), and having circuitry (i.e. electronics) with a plurality circuit portions that are each operatively coupled a respective one the antenna elements, the circuitry generating the heat which is accepted and dissipated by the cooling section [1100] (See page 9, [0101] & page 13, [0155]).

Regarding claim 22, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 21, wherein the antenna section includes a phased array antenna, the antenna elements and the circuitry being portions of the phased array antenna.

Regarding claim 25, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 22, wherein the antenna elements all lie approximately a common plane (i.e. the phased array antennas disposed on the substrate); wherein the circuitry is provided on a circuit board extending approximately parallel to the plane of the antenna elements; and wherein the cooling section [1100] includes an evaporator [600] disposed adjacent at least a portion of the circuitry.

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Regarding claim 26, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 19, wherein the loop [1125, 640] of the cooling system [1100] is a capillary pumped loop.

Regarding claim 27, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 26, wherein the loop [1125, 640] of the cooling system [1100] includes: a condenser [1115] disposed along the loop at a location remote from the evaporators [600], the fluid flowing through each of the evaporators and through the condenser; and a reservoir [1130] which is in fluid communication with the loop, and which contains a quantity of the fluid.

Regarding claim 30, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 19, wherein the loop [1125, 640] of the cooling system [1100] is a loop heat pipe.

Regarding claim 34, Kroliczek et al. teaches in figures 1-25 an apparatus according to Claim 19, wherein the loop [1125, 640] of the cooling system [1100] includes a condenser [1115] disposed along the loop at a location remote from the evaporators [600], the fluid flowing through each of the evaporators and through the condenser; and including a heat sink [165] which is in thermal communication with the condenser.

Allowable Subject Matter

5. Claims 3-4, 8-9, 11-13, 18, 23-24, 28-29 and 31-33 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in

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independent form including all of the limitations of the base claim and any intervening claims.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Friday from 7 AM to 4:30 PM, First Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shih-Chao Chen
Primary Examiner
Art Unit 2821

shih-chao chen
SHIH-CHAO CHEN
PRIMARY EXAMINER

SXC
September 13, 2005